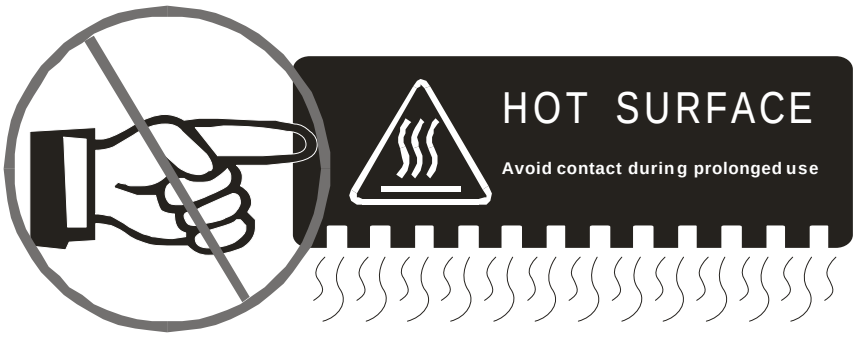
THANK YOU!

Thank you for your purchase of RELM mobile radio RM-800. We believe this easy-to-use radio will provide you with dependable and reliable communications at peak efficiency. Please read this manual carefully before use. The information presented herein will help you to derive maximum performance from your radio.

MODELS COVERED IN THIS MANUAL
RMV800 Mobile Radio
RMU800A Mobile Radio



Do not touch the metal surface of the radio while it is in use.
Do not mount the radio such that the chassis can come in contact with skin.
High temperatures may burn you skin.

MANDATORY SAFETY INSTRUCTIONS TO INSTALLERS AND USERS

- -

? Use Only manufacturer or dealer supplied antennas.

? Antenna minimum safe distance: 82cm (32 inches).

? Antenna used for this transmitter must not exceed an antenna gain of **5.5dBi (for RMV800) and 3dBi (for RMU800A).**

The FCC (Federal Communications Commission) has adopted a safety standard for human exposure to RF energy which is below the OSHA (Occupational Safety and Health Act) limits.

? Antenna mounting: The antenna supplied by the manufacturer or radio dealer must not be mounted at a location such that during radio transmission, any person can come closer than the above indicated minimum safe distance to the antenna (i.e. 82cm/32inches).

? To comply with current FCC RF Exposure limitations, the antenna must be installed at or exceeding the minimum safe distance indicated above, and in accordance with the requirements of the antenna manufacturer or supplier.

? Vehicle installation: The antenna can be mounted at the center of a vehicle metal roof or trunk lid if the minimum safe distance is observed.

Antenna substitution: Don’t substitute any antenna for the one supplied or recommended

by the manufacturer or radio dealer. You may be exposing person(s) to excessive radio frequency radiation. You may contact your radio dealer or the manufacturer for further instructions.

Warning

Maintain a separation distance from the antenna to person(s) at least 82cm (32inches).

“This transmitter is authorized to operate with a maximum duty factor of 50%, in a typical push-to-talk mode, for satisfying FCC RF exposure compliance requirements.”

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User Safety, Training, and General Information

READ THIS IMPORTANT INFORMATION ON SAFE AND EFFICIENT OPERATION BEFORE USING YOUR RELM MOBILE RADIO.

■ Compliance with RF Energy Exposure Standards

Your RELM mobile radio is designed and tested to comply with a number of national and international standards and guidelines (listed below) regarding human exposure to radio frequency electromagnetic energy. This radio complies with the IEEE and ICNIRP exposure limits for occupational/controlled RF exposure environment at operating duty factors of up to 50% transmitting and is authorized by the FCC for occupational use only. In terms of measuring RF energy for compliance with the FCC exposure guidelines, your radio radiates measurable RF energy only while it is transmitting (during talking), not when it is receiving (listening) or in standby mode.

Your RELM mobile radio complies with the following of RF energy exposure standards and guidelines:

- United States Federal Communications Commission, Code of Federal Regulations; 47CFR part 2 sub-part J
- American National Standards Institute (ANSI)/Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1992
- Institute of Electrical and Electronic Engineers (IEEE) C95. 1-1999 Edition
- International Commission on Non-Ionizing Radiation Protection (ICNIRP) 1998

Operational Instructions and Training Guidelines

To ensure optimal performance and compliance with the occupational/controlled environment RF energy exposure limits in the above standards and guidelines, users should transmit no more than 50% of the time and always adhere to the following procedures:

Transmit and Receive

To transmit (talk), push the Push-To-Talk (PTT) button; to receive, release the PTT button.

Approved Accessories

For a list of RELM approved accessories, see the accessories page of this user manual or visit the following website which lists approved accessories: http://www.RELM.com.

■ FCC Compliance

Part 15 Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

? Reorient or relocate the receiving antenna.

? Increase the separation between the equipment and receiver.

? Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

? Consult the dealer or an experienced radio/TV technician for help.

FCC Licensing Requirements

Your radio must be properly licensed Federal Communications Commission prior to use. Your RELM Wireless dealer can assist you in meeting these requirements. Your dealer will program each radio with your authorized frequencies, signalling codes, etc., and will be there to meet your communications needs as your system expands.

Precautions

General Safety Standards

* Do not attempt to configure the radio while driving; it is too dangerous.

* Do not operate your radio when someone is either touching the antenna or standing within 2 or 3 feet of it, to avoid the possibility of radio frequency burns or related physical injury.

* Do not operate the radio near dynamite blasting caps or in an explosive atmosphere.

* Switch OFF the radio while refueling or parking at gas station.
* Turn off your radio in any place where posted notices instruct you to do so.
* Do not modify the radio for any reason.
* Do not expose the radio to direct sunlight over a long time, nor place it close to heating source.
* Do not place the radio in excessively dusty, humid areas, nor on unstable surfaces.
* Refer service to qualified technicians only.

Operation Safety Guidelines

* For vehicles equipped with electronic anti-skid braking systems, electronic ignition systems or electronic fuel injection systems, interferences may occur during the radio transmission. If the foregoing electronic equipments are installed on your vehicle, please contact your dealer for further assistance to make sure that the radio transmission will not interfere with these equipments.
* For radio installation in vehicles fueled by LP gas with LP gas container within interior of the vehicles, the following precautions are recommended for personal safety.
  (1) Any space containing radio equipment shall be isolated by a seal from the space in which the LP gas container and its fittings are located.
  (2) Remote (outside) fitting connections shall be used.
  (3) Good ventilation is required for the container space.

Safety: It is important that the operator is aware of, and understands, hazards common to the operation of any radio.

Installation Safety Guidelines

* Do not mount the mobile radio overhead or on a sidewall unless you take special precautions.
* If someone were to remove the radio and fail to replace it properly, road shock could bump the radio loose, and the falling radio could, in some circumstances, cause serious injury to the driver or a passenger. In a crash, even when properly installed, the radio could break loose and become a dangerous projectile.

Product Inspection

Please carefully unpack the radio. Before use, it is recommended that you inspect the product as follows.

First check the shipping carton for any signs of damage. Confirm the supplied product against the packing slip to assure accuracy. If any items are missing or have been damaged during shipment, please file a claim to the carrier immediately.

Supplied Accessories

Item	Quantity (pcs)
DC Power Cable	1
Mounting Bracket	1
Microphone	1
Microphone Hanger	1
Screw Set	6
Fuse	2
Owner’s Manual	1

Remote Speaker Microphone SM07R2 & coil cord
Microphone Hanger
Mounting Bracket
Adjustment Knobs
Screw Set
Power Cable
Fuse

Radio Installation

¦ Installing the Radio

1. Attach the mounting bracket, using the 4.8 x 20mm self-tapping screws, in a location where convenient operation is accessible.
2. Connect the antenna and the supplied power cable to the radio.
3. Slide the radio into the mounting bracket and secure it using the Adjustment screws.
4. Mount the microphone hanger, using the 4 x 16mm self-tapping screws, in a location where it will be within easy reach of the user.
5. Connect the microphone plug to the microphone jack on the front panel of the radio, then place the microphone on the hanger.

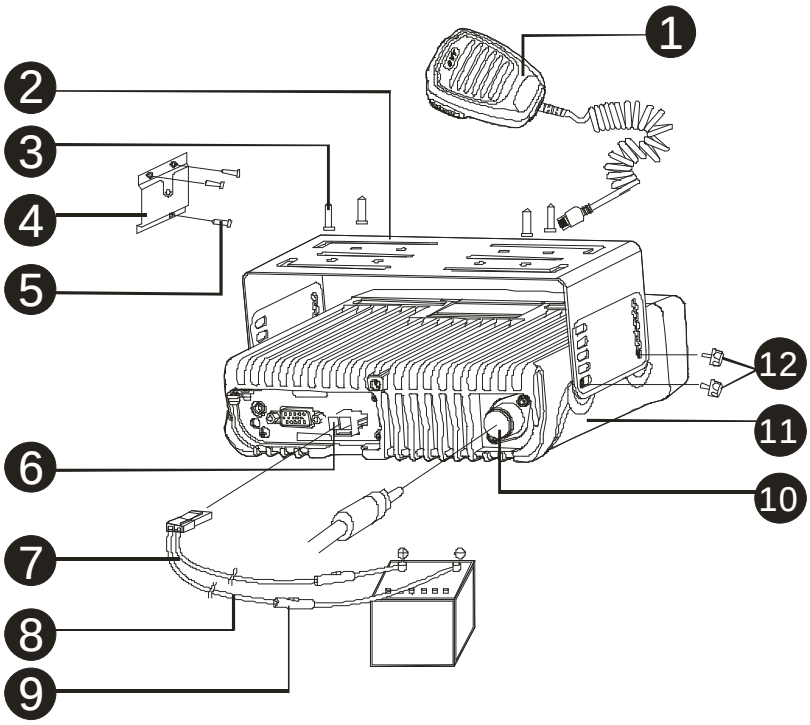


Fig. 1 Radio Set Connection Detail

1. Remote speaker microphone
2. Mounting bracket
3. 4.8 × 20 mm Self-tapping screw
4. Microphone hanger
5. 4 × 16 mm Self-tapping screw
6. Power inlet
7. Red lead
8. Black lead
9. Fuse
10. Antenna connector
11. Main unit
12. Adjustment knob

¦ Installation Tools

The following tools are required for proper installation of your radio:

- Electric drill: ¢6mm or above
- Cross head Screwdriver

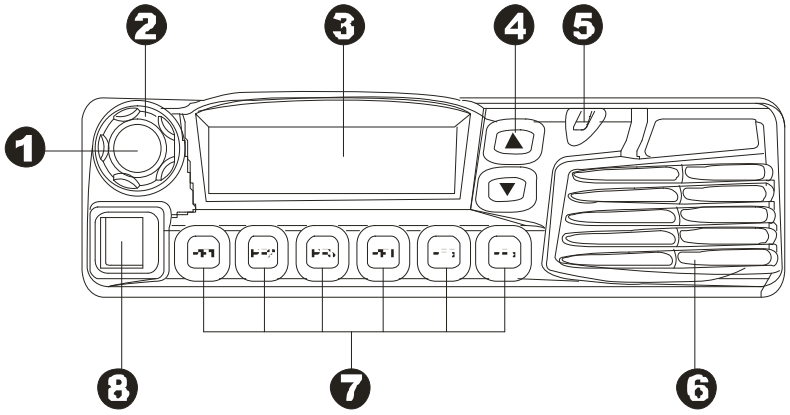
Cross head screwdriver (used to fix 4.8 × 20mm self-tapping screw)

¦ Warnings:

1. The radio operates in **13.6 ± 15% V** negative ground systems only. Check the voltage and polarity of the power supply on the vehicle before installation.
2. Be sure to check how far the screw will extend below the radio surface to avoid damage to the auto wiring or auto parts when drilling mounting holes.
3. Connect the radio with the supplied antenna and power cable before installing the radio by the mounting bracket.
4. Install the radio securely using the supplied mounting bracket to make sure that the radio will not loosen in the event of accidents. The loose radio may cause injury to the passenger.
5. Arrange the installation location of the radio to make sure that the control unit in the front panel is convenient for operation.
6. Be sure to determine the location of the installing holes before installation and drilling.
7. Be sure to make room at the rear of the radio for power cable connection.
8. When replacing the fuse in the DC power cable, be sure to replace it with a fuse of the same value. Never replace a fuse with one that has a higher value.

Radio Overview

¦ Front Panel View



? Power Switch

Press to switch the radio on/off.

? Selector Knob

Volume Up/Down, Channel Up/Down, Zone Up/Down features can be programmed to this knob (set by your dealer).

Turn the knob clockwise to adjust upwards and counterclockwise to adjust downwards.

? LCD Display

Please refer to “LCD Display” section.

? Up/Down Key

Volume Up/Down, Channel Up/Down, Zone Up/Down features can be programmed to the keys (set by your dealer).

? LED Indicator

? Speaker

? Programmable Function Key (PF1-PF6)

Your dealer can program these keys as shortcuts to various radio features.

Please refer to “Programmable Function Key” section.

? Microphone Jack

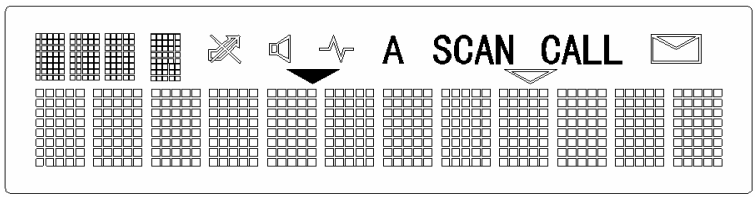
Insert the microphone plug into this jack.

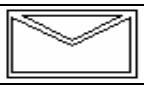
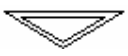
¦ LED Indicator

The LED indicator

- glow red while transmitting
- glow green while receiving
- flash orange when receiving code squelch, selective call, the matching 2-Tone/5-Tone or DTMF signaling

LCD Display



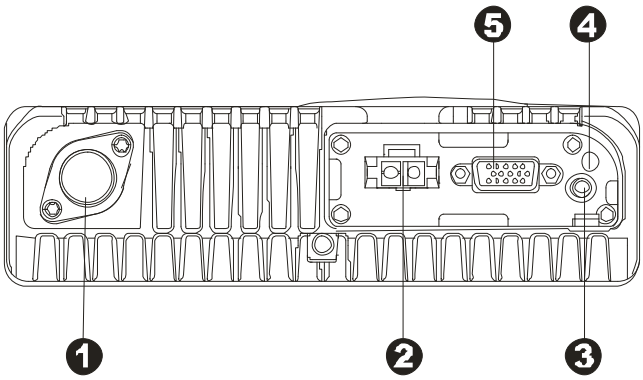
Indicator	Description
	1. Display zone / channel number. 2. Display zone / channel label (set by your dealer, up to 12 alphanumeric characters). 3. Display channel Frequency 4. Display the preprogrammed functions
	1. Display zone / channel number. 2. Display transmit power level (H, M or L). 3. Display the preprogrammed functions
	Appears when the selected channel is busy.
	Appears when [MONI] key is pressed to disable CTCSS, CDCSS, DTMF or 2-Tone/5-Tone.
	Appears when [MONI] key is pressed to switch the speaker on.
A	1. Indicate second development feature. 2. Appears when the auxiliary function is activated.
SCAN	Appears while scanning.
CALL	Appears when transmitting a selective call.
	Appears when a new message is received.
	Appears when the selected zone is in the scan list.
	Appears when the selected channel is in the scan list.

Programmable Function Key

PF1-PF6 key can be programmed with the following auxiliary functions:

1. Off
2. VOL UP
3. VOL Down
4. CH Up
5. CH Down
6. Zone Up
7. Zone Down
8. MoniA
9. MoniB
10. MoniC
11. MoniD
12. DLabel
13. Dfreq
14. Dmode
15. UserTone
16. Sel2Tone
17. Sel5Tone
18. Sel HDC
19. TXPower
20. Scan
21. Scan Add/Del
22. Reverse
23. TA
24. SELSQL
25. HomeCH
26. PA
27. HornAlert
28. LCDBL
29. Scramble
30. Compand
31. AUX A
32. AUX B
33. Send GPS
34. Emergency
35. Message

¦ Rear Panel View



? Antenna Connector
  Used to connect external antenna.
? Power inlet Connector
  Adopt RELM-authorized DC power cable and 13.6 V input AC power.
? Speaker Jack
  Used to connect external speaker and only available for the plug of 3.5 mm.
? GPS Antenna Jack
? 15 Pin Connector (for accessories)

Basic Operations

Turn the Radio On/Off

Press the Power switch to switch the radio on.

Press and hold the Power switch for approximately 1 second to switch the radio off.

If Power on Password is set to protect your radio, “Chk P” and the cursor will appear on the display when power is turned on. You can unlock the radio by entering the correct password (8 digits maximum):

1. Select a digit (0-9) by rotating the selector knob.
   If you are using an optional microphone with a keypad, you can also enter the password by pressing the appropriate keypad keys.
2. Press the [PF3] / [PF4] key to move cursor forward and backward.
   This step can be skipped when using the keypad.
3. Repeat steps 1 and 2 to enter the entire password.
4. Press the [PF6] key or the [PTT] key to complete the entry.

Adjust the Volume

Selector Knob, [?] / [?] or the function keys PF1-PF6 can be programmed with VOL Up / VOL Down features to adjust volume level.

Rotate the Selector Knob clockwise or press the key which be programmed as [VOL Up] key to increase the volume; rotate the knob counter-clockwise or press the key which be programmed as [VOL Down] key to decrease the volume. The current volume level is displayed on the LCD. The LCD returns to original display mode in 5 seconds. Press any key to exit from the volume level display mode.

Monitor

If monitor feature is set by your dealer, press the key programmed as [MONI] in receive mode to monitor activity on your selected channel.

Your dealer can select one of the following four modes for monitor feature:

- Monitor Unmute-Momentary
  Hold down the [MONI] key to open CTCSS/CDCSS/DTMF/2-Tone/5-Tone signalling squelch. Release to close the signalling squelch.
- Monitor Unmute-Toggle
  Press the [MONI] key to open CTCSS/CDCSS/DTMF/2-Tone/5-Tone signalling squelch. Press again to close the signalling squelch.
- Carrier Squelch-Momentary
  Hold down the [MONI] key to open carrier squelch; Release to close the carrier squelch.
- Carrier Squelch-Toggle
  Press the [MONI] key to open carrier squelch. Press again to close the carrier squelch.

Select a Channel

Selector Knob, [?] / [?] or the function keys PF1-PF6 can be programmed with CH Up/ CH Down features to select a channel. Transmit/Receive frequencies of the channel are set by your dealer.

Rotate the Selector Knob clockwise or press the key which be programmed as [CH Up] key to select a channel upwards; Turn the knob counterclockwise or press the key which be programmed as [CH Down] key to select downwards.

Select a Zone

Selector Knob, [?] / [?] or the function keys PF1-PF6 can be programmed with Zone Up/ Zone Down features to select a zone. Transmit/Receive frequencies of the channel are set by your dealer.

Rotate the Selector Knob clockwise or press the key which be programmed as [Zone Up] key to select a zone upwards; Turn the knob counterclockwise or press the key which be programmed as [Zone Down] key to select downwards.

Receive

If your dealer has programmed CTCSS/CDCSS/DTMF/2-Tone/5-Tone signalling on the selected channel, you will hear calls only when the matching code or tone is received; otherwise, all calls on the same channel can be heard.

Transmit

1. Press the key programmed as [MONI] to make sure that the selected channel is not in use.
2. Hold down the [PTT] key.
3. Dial a DTMF number using the microphone keypad.
   Step 3 is not necessary all the time.
4. Speak into the microphone with normal voice. The LED glows red during transmission.
5. Release the [PTT] key to receive.
6. When your conversation is finished, return the microphone to its hanger.

Selectable Power Level

If transmit power (programmed by your dealer) is set to “high” (or "middle”) on any given channel, press the key programmed as [TX Power] to toggle the TX power among high, middle and low. The current power level is indicated by “H” /“M” / “L” icon on the LCD.

Since low power helps to conserve battery power and reduce the risk of interfering with others, you are recommended to select low power when communication quality is guaranteed.

Notes:

? Press the [TX Power] key while using a channel programmed with low power, an error tone will sound and the transmit power will not change.

? When changing a channel from high/middle power to low power, all other channels programmed with high/middle power will change to low power accordingly.

Beginning/End of Transmission ID Signal

The radio can be programmed to send Beginning/End of Transmission ID when accessing / releasing repeaters or telephone systems. The ID signal includes DTMF and 5-Tone types. Two modes can be configured:

? Press the [PTT] key to send a Beginning of Transmission ID Signal; Release the [PTT] key to send an End of Transmission ID Signal.

? Press [*] while holding down the [PTT] key to send a Beginning of Transmission ID Signal; press [#] while holding down the [PTT] key to send an End of Transmission ID Signal (for DTMF type only).

Channel Scan

? Scan Types

? Single Zone Scan

All channels in the current zone that have been added to the scan list can be scanned.

? Multi Zone Scan

All channels within all the zones that have been added to the scan list can be scanned.

? List Zone Scan

The radio only scans the channels within the specified range of zones that have been added to the scan list. Individually each zone is assigned with a scan list, which provides quick recognition of the zones to be locked out of scan list.

Note: Scan list for each zone can be added/ deleted.

? Scan Start

Press the key programmed as [SCN], scan starts from the current channel and ascends through the channel numbers in scan list. “SCAN” appears on the LCD (“ -SCAN X - ” in List Zone Scan mode, “X” is the current list number).

Note: Scan function can be used only when two or more channels are in the scan list.

? Scan Stop

1. Press the [SCN] key again to stop scanning. “SCAN” disappears on the LCD.
2. Activate the Monitor function.
3. Carrier is detected on channels where no signalling is set.
4. Carrier is detected on channels where signalling is set, and the matching signalling is received.

? Scan Restart

When the radio stops on a busy channel, scanning can be restarted according to the restart mode, which can be programmed by the dealer as carrier-operated scan or time-operated scan.

? Carrier Operated Scan

Scanning remains on an active channel until there are no activities; while the channel is free, the radio remains on the channel for the programmed Dropout Delay Time (programmed by your dealer) before it resumes scanning.

? Time Operated Scan

Scanning remains on the active channel for only the programmed Dropout Delay Time (programmed by your dealer) before it resumes scanning. After the expiration of Dropout Delay Time, the radio will begin scanning other channels even if the channel is still busy.

? Dual Priority Scan

If your dealer has programmed dual priority channels, the radio will periodically detect the activity on priority channels while stopping on non-priority channels. When any activity is detected on the priority channels, the radio will switch to the priority channels for communications.

“P1” appears on the LCD when the channel is set as Priority 1, “P2” appears when set as Priority2, and “PP” when set as both Priority 1 and Priority 2.

? Operator Selectable Priority Channel

If priority channel is programmed by your dealer as “Operator Selectable”, you can set the current channel as priority or non-priority channel:

Press the key programmed as [MONI] twice while holding down the key programmed as [SCN], the current channel is changed to "Priority 2".

Press the [MONI] key three times while holding down the [SCN] key, the current channel is changed to "Priority 1".

Press the [MONI] key four times while holding down the [SCN] key, the current channel restores to original setting.

? Scan Add/Delete

This feature allows you to add/delete a channel to/from the scan list in the non-scan mode.

1. Select the channels to be added/ deleted by using the channel selector knob.
2. Press the key programmed as [Add/Del] to toggle between ADD and DELETE. “▽”appears on the LCD when a channel is added.

Note: The radio only scans the channels that have been added to the scan list.

? Look Back Temporary Disable

When scanning looks back and stops on a priority channel, press the key programmed as [Add/Del] to deactivate the Look Back function.

? Nuisance Channel Temporary Delete

This feature allows you to temporarily delete a channel to/from the scan list during scanning.

When scanning stops on an undesired channel (e.g. nuisance channel), press the key programmed as [Add/Del], the channel is temporarily removed from the scan list and scanning resumes.

Note: The deletion of channels are not saved when radio exits from the scan mode.

? Revert Channel

Press the [PTT] key during scanning, the radio will stop scanning and switch to the preset revert channel (programmed by your dealer) for transmission.

? Off Hook Scan

If your dealer has programmed Off Hook Scan feature, scanning is not controlled by microphone hook status, it also means that the radio always scans, and stops by signal presence. Otherwise, microphone must be on hook for scanning.

Busy Channel Lockout (BCL)

When activated by your dealer, the BCL feature will prevent you from talking on a channel that is already in use. Press the [PTT] key while the channel is in use, the radio will emit an alert tone and transmission will be inhibited. Release the [PTT] key to stop the alert tone. Wait until the channel is not in use before you try to transmit again.

BCL Override

If BCL Override feature is activated, you can override the BCL feature and transmit on a busy channel. To override the BCL, release the [PTT] key when the alert tone sounds, then press the [PTT] key again within 0.5 second.

DTMF Call

? Manual Dial

Hold down the [PTT] key, then enter the DTMF number by pressing the keys ([0] ~ [9], [*], [#]) on optional microphone keypad. Audible tone sounds when corresponding DTMF tone is transmitted.

The radio can be programmed by your dealer to remain in transmit mode for 2 seconds after releasing the [PTT] key. Press any numeric key within 2 seconds to continue transmission.

? Keypad Auto PTT

If this feature is programmed by your dealer, you can transmit a DTMF tone by pressing the keys on optional microphone keypad without holding down the [PTT] key.

? Store & Send

If this feature is activated, enter a preset DTMF number (16 digits maximum) in receive mode, then press the [PTT] key to place the call. The DTMF number scrolls across the LCD display as it is entered, and its corresponding audible tone sounds.

Notes:

? If you enter a wrong digit or decide not to dial the number, press any key other than the power switch on the front panel to exit.

? The [D] key can be programmed by your dealer as a null tone. This also means that “D” tone is not transmitted when “D” is entered. Instead, “D” is used for a pause time (programmable by your dealer).

? Dial Speed

Your dealer can select dial speed at 6, 8, 10 or 15 digits per second.

This is designed to reduce false decoder operation by providing a fixed time period between digits. Default: 10 digits per second

? Store DTMF Numbers

You can store DTMF numbers (16 digits maximum) in each of the 32 Auto Dial memory locations (01~ 32).

1. Press the [#] key, “D----------” appears on the LCD.
2. Enter the DTMF number (16 digits maximum).
   You can enter the digits 0-9, A-F.
   To enter A,B,C,D,E,F, hold down the [PTT] key, then enter 2, 5, 8, 0, *, # respectively.
3. Press the [#] key, “------” appears on the LCD indicating the memory location.
4. Enter the desired memory location number (01~ 32).
5. Press the [#] key again to store the DTMF number into the memory location.

If you enter a wrong digit or decide not to dial the number, press any key other than the power switch on the front panel to exit.

? Confirm Stored DTMF Numbers

1. Press the [*] key, “A---” appears on the LCD.
2. Enter the desired memory location number (01~ 32).
   The stored DTMF number or caller ID is displayed on the LCD. Press any key other than the [PTT] key, the original display is restored.

? Dial Stored DTMF Numbers

1. Press the [*] key, “A---” appears on the LCD.
2. Enter the desired memory location number (01~ 32).
   The stored DTMF number or caller ID is displayed on the LCD.
3. Press the [PTT] key to place the call.

? Clear Stored DTMF Numbers

1. Press the [#] key, “D----------” appears on the LCD.
2. Press the [#] key again, “D Clear” appears on the LCD.
3. Enter the desired memory location number (01~ 32).

To cancel the process, press any key other than [0]~ [9].

4. Press the [#] key, the stored DTMF number is cleared.

? Redial

1. Press the [*] key, “A--” appears on the LCD.
2. Press the [0] key twice, the last number (16 digits maximum) you dialed is redialed. The redialed number is displayed on the LCD.
3. Press the [PTT] key to place the call.

Note: The redial memory is cleared when the radio is turned off.

Code Squelch

The code squelch feature can be programmed by your dealer.

If this feature is activated, squelch turns on only when the received DTMF/2-Tone/5-Tone code matches the radio ID code (set by your dealer). Otherwise, your radio will not respond to the calls.

? Receive

1. When the received DTMF/2-Tone/5-Tone code matches the radio ID code (set by your dealer), squelch turns on and you will hear the call without any further action after an alert tone/Transpond finishes.
2. “CALL” icon appears on the LCD and radio LED flashes orange.
3. Signalling squelch will turn back ON when you press the key programmed as [MONI] or when no signal is received for the preset time period.
4. The radio can be programmed to sound an alert tone when receiving a matching code. If Transpond for Code Squelch function is enabled, the radio will send a transpond signal (programmed by your dealer) to the calling station when receiving the matching code. The Transpond for Code Squelch function can not be used in Group Call mode.

? Transmit

1. Hold down the [PTT] key.
2. Enter the preset DTMF code (ID code of the called radio or group) through the keypad.
   - ? If desired, you can use “store and send” or “speed dial” function to transmit codes. Then operates the mobile radio in the same way as a portable radio.
   - ? During code transmission, “CALL” icon appears on the LCD and radio LED glows red.
   - ? Please refer to the [TTS], [FTS] key for 2-Tone/5-Tone transmission.
3. Release the [PTT] key, signalling squelch will turn OFF and LED flashes orange. Radio LED glows green when a signal is received and flashes orange again when the signal drops out.
4. Signalling squelch will turn back ON when you press the key programmed as [MONI] or when no signal is received for the preset time period.

Auto Transpond

The Auto Transpond function can be programmed by your dealer to use with the Code

Squelch function. When activated, the radio will send a transpond signal when receiving the matching code. Four types of transpond signal can be programmed by your dealer:

- Ringing tone
- Alert Tone
- Transpond code
- Alert Tone + Transpond code

Press any key to stop the ringing tone.

Off-Hook Decode

If your dealer has activated the feature, CTCSS/DCS decode signalling will be activated no matter whether the microphone is on-hook. Otherwise, decode signalling is deactivated during the off hook condition, squelch works as carrier squelch.

Time-Out-Timer

Time-out-Timer (TOT) feature can be set in each zone.

? **TOT**

TOT is used to prevent user from transmitting on the same channel for extended period of time. This also protects the radio from damage caused by long time transmissions.

If continuous transmission exceeds the preset time (15-1200 seconds), the transmission will be inhibited and an alert tone will sound. Release the [PTT] key to stop the alert tone.

? **TOT Pre-Alert**

When this feature is activated, the radio will sound an alert tone at the programmed pre-alert time before TOT expires. TOT will expire when the selected time passes after a "Pre-Alert Tone". Pre-alert time (1-10 seconds before the TOT expiration) is set by your dealer.

? **TOT Rekey Time**

When this feature is activated, transmission will remain inhibited until TOT Re-key Time expires, even if you have pressed the [PTT] key**.** Rekey time (Off, 1-60 seconds) is set by your dealer.

? TOT Reset Time

TOT won't reset even after PTT is released unless the TOT Reset Timer has expired.
Reset time (Off, 1-15 seconds) is set by your dealer.

Emergency Call

Hold down the key programmed as [Emergency] for longer than a preset time ("Emergency Key Delay Time", programmable by your dealer) to enter emergency call mode.

The radio will switch to the preset emergency zone / channel, then transmit and receive

for a preset time in turn automatically.
While in Emergency mode, switch the power OFF or hold down the key again for longer than a preset time ("Emergency Key Delay Time", programmable by your dealer) to exit Emergency mode .

Stun & Revive

This feature allows user to enable/disable the transmission/reception over the air by transmitting stun code.
Stun code (1-16 digits) is programmable. When receiving the stun code, the radio will enter stun mode. The radio will return to normal mode upon receiving a revive code (stun code + [#]).
3 types of stun are shown as following:
? Inhibit transmission
? Inhibit both transmission and reception
? Kill (inhibit all radio functions)

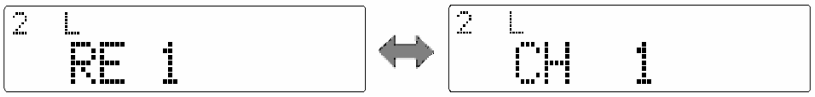
Programmable Auxiliary Functions

Your dealer can program the following auxiliary functions to the programmable keys PF1-PF6.

Reverse Frequency

If communications between radios are disrupted because of a long distance from the repeater, reverse frequency function can be used to re-establish communications to another radio. When the function is activated, the transmit frequency and receive frequency will be reversed. The corresponding CTCSS/DCS encoding and decoding signals will also be reversed.

Press the key programmed as [Reverse] to toggle the reverse frequency function ON and OFF.

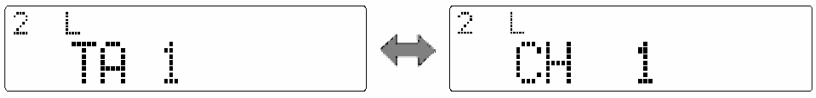


ON OFF

Talkaround

If Talkaround is programmed, the transmit frequency can be changed to be the same as the receive frequency. The CTCSS/DCS encoding signals also change to be the same as the decoding signals.

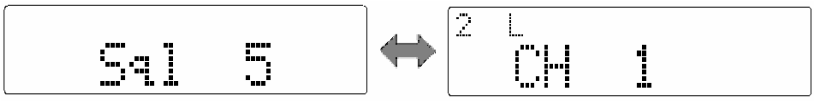
Press the key programmed as [TA] to toggle the Talkaround function ON and OFF.



ON OFF

Selectable Squelch Level

1. Press the key programmed as [SEL SQL], the current squelch level is displayed on the LCD as shown below.



2. Turn the Selector Knob to select your desired squelch level.
3. Press any key other than the power switch to save the selected squelch level. The LCD returns to the original display mode.

Note: If the squelch level is set too high, you may not efficiently receive weak signals; if the level is set too low, you may hear a constant white noise, a sputtering noise, or unwanted signals.

User Selectable Tone (CTCSS/DCS)

This function can be programmed by your dealer to temporarily change the preset CTCSS/DCS frequency on a channel.

1. Select your desired channel.
2. Press the key programmed as [UST] to enter the UST mode.

3. Use the Selector Knob to select a desired UST code/ name. The selected CTCSS/DCS frequency is valid only in UST mode.
4. Press the [UST] key again, the radio exits from UST mode and the LCD returns to the original display mode.

Public Address

This function can be used to amplify all the audio from the speaker and output the audio through external speaker.

1. Press the key programmed as [PA] to activate Public Address function. “PA” appears on the LCD display. Press the key again to deactivate this function and return to normal user mode.
2. In PA mode, no transmission and reception occurs.
3. Hold down the [PTT] key and speak into the microphone, your voice can be heard from the external speaker that is connected to the radio. “PA On” appears on the LCD display.
4. Release the [PTT] key, the public address process halts and “PA” appears on the LCD display.

Notes:

? In Public Address mode, turn the volume knob to adjust the volume.

? To use this function, the dealer should install public address optional accessory and external speaker.

Dual Home Channels

Press the key programmed as [Home CH], the radio will go to the programmed home channel.

When dual home channels are set, press the key programmed as [Home CH] to switch to Home Channel 1, press again to switch to Home Channel 2, and press for the third time to return to the original channel.

Horn Alert

1. Press the key programmed as [HA] to activate Horn Alert function, “HA” appears on the LCD display.
2. The radio’s accessory ports HRI and HRO is connected when receiving calls of the matching 2-Tone/5-Tone/DTMF/HDC2400^{TM} code from the base station or other radios.
3. Press the [HA] key again to exit from the Horn Alert mode.

Note:

This function is especially helpful when user is away from the radio. It can be used to control the electronic devices over the air.

Selectable Two-Tone Encode

1. Press the key programmed as [TTS], the programmed 2-Tone code or name will be displayed on the LCD.
2. Turn the selector knob to select 2-Tone code (01-32) or name.
3. Hold down the [PTT] key to transmit the selected code.
4. Release the [PTT] key**,** signalling squelch turns off and radio LED flashes orange.
5. Press the key programmed as [MONI]**,** signalling squelch turns back on.

   Note: The radio will opens signalling squelch automatically if no signal is received for the preset period of time.

Selectable Five-Tone Encode

1. Press the key programmed as [FTS], the programmed 5-Tone code or name will be displayed on the LCD.
2. Turn the selector knob to select 5-Tone code (01-32) or name.
3. Hold down the [PTT] key to transmit the selected code.
4. Release the [PTT] key**,** signalling squelch turns off and radio LED flashes orange.
5. Press the key programmed as [MONI]**,** signalling squelch turns back on.

   Note: The radio will opens signalling squelch automatically if no signal is received for the preset period of time.

Display Frequency

Press the key programmed as [DFreq], LCD will display the frequency of the current channel.

Display Label

Press the key programmed as [DLabel], LCD will display channel label.

Display Mode

The radio will toggle among the 5 display modes each time when the key programmed as [DMode] is pressed.

5 display modes are shown as follows:

Channel number

Channel label

Zone number

Zone label

Channel frequency

LCD Backlight

Press the key programmed as [LCD Backlight] to toggle LCD backlight on/off

Compander

Press the key programmed as [Compander] to toggle Compander on/off.

Scrambler

Press the key programmed as [Scrambler] to toggle Scrambler on/off.

Note: Emphasis/de-emphasis features are turned off when scrambler is activated and turned on when scrambler is deactivated.

GPS Report

When GPS receiver is installed, press the key programmed as [Send GPS] to transmit your position data.

HDC2400

. HDC list

1. Press [HDC List] key (programmable key) to view the preset HDC list item number or name on the display.
2. Turn the selector knob to select the desired HDC list item number or name.
3. Press the PTT key to complete the call.

HDC can achieve the following functions: selective call (individual call, group call, zone call, and broadcast), call alert and system function (stun, kill, revive, check) etc.

Short Message

Since Short Message function is realized through HDC2400^{TM}, the channels of the receiver and sender should be configured with optional signaling HDC2400^{TM}.

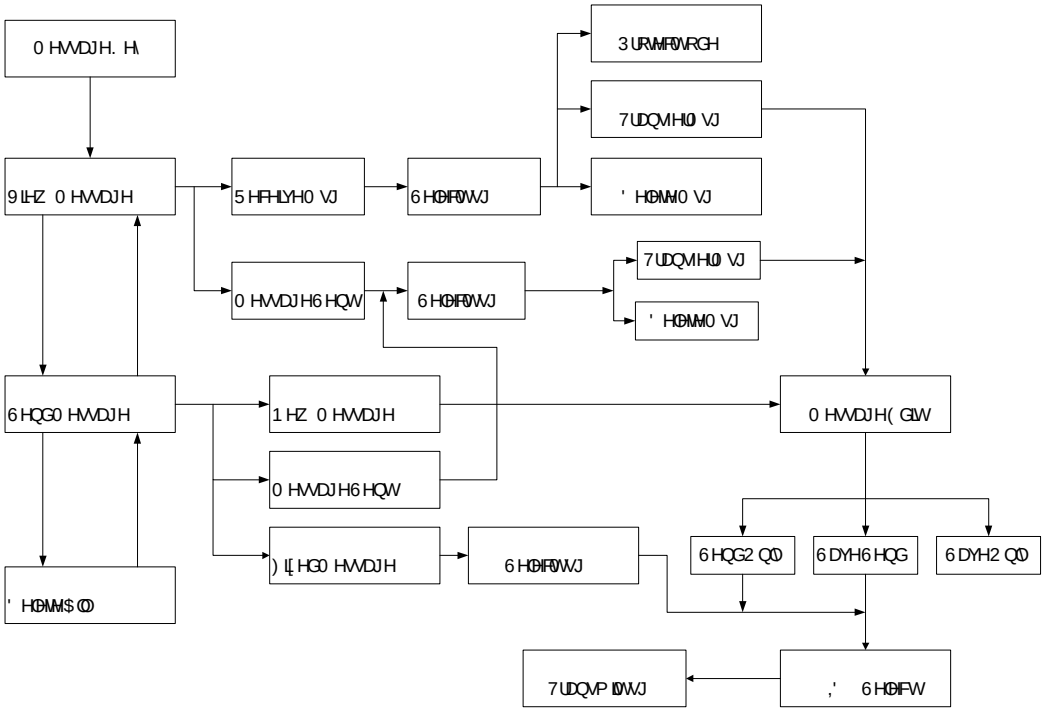
Via multi level menu operation, short messages can be edited, saved, viewed, sent, protected and deleted. Press [Message] key (programmable key) in user's mode to enter Short Message Menu.

"Receive Msg" Inbox can receive 38 messages at the most, with no more than 48 characters in each one.

"Message sent" Outbox can save 8 messages at the most, with no more than 48 characters in each one.

"Fixed Message" box can save 32 messages at the most, with no more than 31 characters in each one.

The main operation flow is illustrated as follows:



Menu Operation:

1) Press PF6 to confirm;
2) Press PF1 to return to the previous;
3) Turn the knob or press Up/Down key to select.

Message Receiving

The radio emits an alert tone and the icon is shown on the display when a message is received (if corresponding functions are enabled). Press [Message] to view the message.

Message Sending and Deleting

Select “Send Message” in the main menu, followed with three options:

1) New message edition, “New Message” is shown on LCD;
2) Sent message, “Message sent” is shown on LCD;
3) Fixed message, “FixedMessage” is shown on LCD.

1. Sending new message:

1) Select the desired group and channel.
2) Press [Message] key (programmable key) to enter Short Message Menu and select “Send Message”.
3) Select “New Message”.
4) Enter the message content (please refer to Appendix 1 for character input methods).
5) Select “Send Only”, “Send&Save”, or “Save Only” in the menu.
   If “Send Only” or “Send&Save” is selected, the following steps are required.

6) Select sending type, “Individual” or “Group Call”.
7) Use the knob selection/keypad entering to determine the desired receiver ID (individual/group). (Please refer to Appendix 1 for character input methods); or press PF6 to enter ID menu.
8) Press PF6 or the PTT key to send message.

2. Sending or deleting sent message:

1) Select the desired group and channel.
2) Press [Message] key (programmable key) to enter Short Message Menu and select “Send Message”.
3) Select “Message Sent”.
4) Select the desired message (Note 1)
5) Select “Transfer Msg” or “Delete Msg”.
   If “Delete Msg” is selected, the selected massage will be deleted.
   If “Transfer Msg” is selected, the following steps are required;
6) Select sending type, “Individual” or “Group Call”.
7) Use the knob selection/keypad entering to determine the desired receiver ID (individual/group). (Please refer to Appendix 1 for character input methods); or press PF6 to enter ID menu.
8) Press PF6 or the PTT key to send message.

3. Sending Fixed Message

1) Select the desired group and channel.
2) Press [Message] key (programmable key) to enter Short Message Menu and select “Send Message”.
3) Select “FixedMessage”.
4) Select the desired fixed message (Note 1).
5) Select sending type, “Individual” or “Group Call”.
6) Use the knob selection/keypad entering to determine the desired receiver ID (individual/group). (Please refer to Appendix 1 for character input methods); or press PF6 to enter ID menu.
7) Press PF6 or the PTT key to send message.

Message Viewing and Deleting

Select “View Message” in the main menu, followed with two options:

1) To view received message, “Receive Msg” is shown on LCD;
2) To view sent message, “Message Sent” is shown on LCD;

1. Viewing or deleting received message

1) Select the desired group and channel;
2) Press [Message] key (programmable key) to enter Message Menu to choose “View Message”;
3) Select “Receive Msg”;
4) Select the ID of the desired message;

5) Select the content of the desired message;
6) Select “Protect Mode”, “Transfer Msg” or “Delete Msg”(Note 2);
If “Delete Msg” is selected, the selected massage will be deleted.
If “Transfer Msg” is selected, the following steps are required.
7) Select sending type, “Individual” or “Group Call”;
8) Use the knob selection/keypad entering to determine the desired receiver ID (individual/group). (Please refer to Appendix 1 for character input methods); or press PF6 to enter ID menu.
9) Press PF6 or the PTT key to send message.

2. Viewing or deleting sent message

1) Select the desired group and channel;
2) Press [Message] key (programmable key) to enter Short Message Menu and choose “View Message”;
3) Select “Message Sent”;
4) Select the desired short message (Note 1);
5) Select “Transfer Msg” or “Delete Msg”.
If “Delete Msg” is selected, the selected massage will be deleted.
If “Transfer Msg” is selected, the following steps are the same as those 6)-8) in “Sending Sent Message”. Please refer to “Sending Sent Message”.

Received Message Deleting

All the messages in the “Receive Msg” Inbox will be deleted after selecting “Delete All” in the main menu and press PF6, except those are set with protect mode.

1) Press [Message] key (programmable key) to enter short message menu and choose “Delete All”;
2) Delete all messages.

Note 1: If no message inside, “Empty” appears and the after operation cannot proceed.

Note 2: “A” icon appears if protect mode is selected. Press PF6 key to toggle between protect and non-protect modes. The messages cannot be deleted in protect mode.

Optional Signalling (DTMF/2-Tone/5-Tone/HDC2400™)

The preset functions are activated when the received signal matches the optional signalling.

When optional signalling is programmed on a channel or zone, radio LED will flash orange and the radio will sound an alert tone or transpond to the call if a signal containing the correct tone/code is received.

? CTCSS/DCS AND / OR DTMF/2-Tone/5-Tone/HDC2400™

Signalling Logic	Squelch	Alert Tone / Transpond

AND	Unmutes only when both CTCSS/DCS and Optional Signalling (2-Tone/5-Tone/DTMF/HDC2400^{TM}) are received and matches the preset one on selected channel.	Activated only when both CTCSS/DCS and Optional Signalling (2-Tone/5-Tone/DTMF/ HDC2400^{TM}) are received and matches the preset one on selected channel.
OR	Unmutes when either CTCSS/DCS or Optional Signalling (2-Tone/5-Tone/ DTMF/HDC2400^{TM}) is received and matches the preset one on selected channel.	Activated only when either CTCSS/DCS or Optional Signalling (2-Tone/5-Tone/DTMF/HDC2400^{TM}) is received and matches the preset one on selected channel.

? Auto Reset

Signalling squelch will automatically turn back on when no signal is received for a preset period of time.

User Set Mode

Turn the power on while holding down the [PF1] key, the radio enters User Set mode after correct power-on password is entered (if Power-On Password is set). In User Set mode, the following menus can be selected:

Main Menu

No.	Menu Item	LCD Display
1	Function Set	Function Set
2	Power On Text	Power On Text
3	Power On Password	PWR Password
4	UST Code	UST Code
5	Hook & Moni	Hook & Moni
6	Key Assignment	Key Assign

Press the [PF6] key to enter the selected menu. In User Set mode, turn the power off and back on to enter the Conventional mode.

In User Set mode, you can operate as following:

1. Turn the Selector Knob to make settings;
2. Press the [PF6] key to save the settings and enter the next setting item;
3. Press [Up]/[Down] to select the setting item upwards/downwards without saving the settings;
4. Press the [PF1] key to return to user set menu mode.

? Function Set

Select “Function Set” in main menu and press the [PF6] key to make settings as following:

Function Set				
No.	Function	Setting	Display	Remarks

1	Home Channel	Home Off	Home Off	
		Home 1 On	Home 1 On	
		Home 2 On	Home 2 On	
		Home Both On	Home Both On	
		Zone Home Channel	Home Zone	
2	Home Channel 1	Zone	1	Selector Knob: change zone or channel
		Channel	Home1 1	[PF5]: Toggle between zone and channel
	Home Channel 2	Zone	1	Selector Knob: change zone or channel
		Channel	Home2 1	[PF5]: Toggle between zone and channel

? Power On Text

Select “Power on Text” in main menu and press the [PF6] key to make settings. The power-on text will be displayed. Press the [PF1] key to enter Text Edit mode. Please refer to Appendix 1 “Entering Characters” for more details.

Power On Text			
Function	Setting	Display	Remarks
Power On Text	Blank	----------	Please refer to Appendix 1 “Character Input”. 12 characters maximum.
	Text	Welcome	

? Power On Password

Select “PWR Password” in the main menu and press the [PF6] key to make settings. “Power On Password” will be displayed. Press the [PF1] key to enter Password Edit mode. Please refer to Appendix 1 “Entering Characters” for more details.

Power On Password			
Function	Setting	Display	Remarks
Power On Password	Blank	----------	Please refer to Appendix 1 “Entering Characters”. Numeric character only (8 digits maximum).
	Number	88888888	

? UST Code

Select “UST Code” in the main menu and press the [PF6] key to make settings.

UST Code				
No.	Function	Setting	Display	Remarks
1	UST Code No.	1-32	UST 1	
			UST 32	
2	UST Code Name	ASCII CODE	UST 1	
			----------	No input
3	RX Signalling	Off	R Off	PF5: OFF/CTCSS/CDCSS

		CTCSS (EIA standard mode) 67.0-254.1Hz	R CTCSS 67.0	[PF4]: Toggle between standard mode and step mode [PF3]: Toggle between CDCSS and reverse CDCSS
			R CTCSS 254.1	
		CTCSS (step: 0.1Hz) 67.0-254.1Hz	R CTCSS 67.0*	
			R CTCSS 254.1*	
		CDCSS (standard mode) 023-754	R CDCSS 023N	
			R CDCSS 754N	
		CDCSS (1 step mode) 000-777	R CDCSS 000N*	
			R CDCSS 777N*	
		CDCSS (standard mode) 023-754 Reverse	R CDCSS 023?	
			R CDCSS 754?	
		CDCSS (1 step mode) 000-777 Reverse	R CDCSS 000? *	
			R CDCSS 777? *	
4	TX Signalling	OFF	T Off	[PF5]: OFF/CTCSS/CDCSS
		CTCSS (EIA standard mode) 67.0-254.1Hz	T CTCSS 67.0	[PF4]: Toggle between standard mode and step mode
			R CTCSS 254.1	[PF3]: Toggle between CDCSS and reverse CDCSS
		CTCSS (step: 0.1Hz) 67.0-254.1Hz	T CTCSS 67.0*	
			T CTCSS 254.1*	
		CDCSS (standard mode) 023-754	T CDCSS 023N	
			T CDCSS 754N	
		CDCSS (1 step mode) 000-777	T CDCSS 000N*	
			T CDCSS 777N*	
		CDCSS (standard mode)	T CDCSS 023 I	

		023-754 Reverse	T CDCSS 754 I	
		CDCSS (1 step mode) 000-777 Reverse	T CDCSS 000 I*	
			T CDCSS 777 I*	

■ **Hook & Moni**

Select submenu “Hook & Moni”, press [PF6] to enter Hook & Moni Mode.

NO.	Function	Setting	Display	Remarks
1	Hook & Moni	Hook	HandMic Hook	Selected when hand microphone is used
		Moni	TableMicMoni	Selected when desktop microphone is used

? Key Assignment

Select “Key Assign” in the main menu and press the [PF6] key to program the programmable keys PF1-PF6 as following:

Key Assignment				
No.	Function Key	Setting	Display	Remarks
1	[PF1]	Off	PF1 Off	No function
		VOL UP	PF1 VOL UP	Volume Up
		VOL Down	PF1 VOL Down	Volume Down
		CH Up	PF1 CH Up	Channel Up
		CH Down	PF1 CH Down	Channel Down
		Zone Up	PF1 Zone Up	Zone Up
		Zone Down	PF1 Zone Down	Zone Down
		MONI A	PF1 MoniA	Monitor A: Monitor Unmute-momentary
		MONI B	PF1 MoniB	Monitor B: Monitor Unmute-Toggle
		MONI C (default)	PF1 MoniC	Monitor C: Carrier Squelch-momentary
		MONI D	PF1 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF1 DLabel	Display channel label
		Display Frequency	PF1 Dfreq	Display frequency
		Display Mode	PF1 Dmode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF1 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF1 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF1 Sel5Tone	Select 5-Tone encode
		Sel HDC	PFI SelHDC	Select HDC encode
		TX Power	PF1 TXPower	Switch transmit power

		Scan	PF1 Scan	Scan
		Add/Del	PF1 Add/Del	Add/Del as not at scan status
				Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF1 Reverse	Reverse frequency
		Talk Around	PF1 TA	Talk around
		SEL SQL	PF1 SELSQL	Select squelch level
		Home CH	PF1 HomeCH	Home channel
		Public Address	PF1 PA	Public address
		Horn Alert	PF1 HornAler	Horn alert
		LCD Backlight	PF1 LCDBL	LCD backlight
		Scrambler	PF1 Scramble	Scrambler
		Compander	PF1 Compand	Compander
		AUX A	PF1 AUX A	AUX A Port output control
		AUX B	PF1 AUX B	AUX B Port output control
		Send GPS	PF1 Send GPS	Send GPS
		Emergency Call	PF1 Emergency	Emergency call
		Message	PF1 Message	Message
Sel HDC	PFI SelHDC	Select HDC encode	PF2 Off	No function
		VOL UP	PF2 VOL Up	Increase volume
		VOL Down	PF2 VOL Down	Decrease volume
		CH Up	PF2 CH Up	Channel up
		CH Down	PF2 CH Down	Channel down
		Zone Up	PF2 Zone Up	Zone up
		Zone Down	PF2 Zone Down	Zone down
		MoniA	PF2 MoniA	Monitor A: Monitor Unmute-momentary
		MoniB	PF2 MoniB	Monitor B: Monitor Unmute-Toggle
		MoniC	PF2 MoniC	Monitor C: Carrier Squelch-momentary
		MoniD	PF2 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF2 Dlabel	Display channel label
		Display Frequency	PF2 DFreq	Display frequency
		DisplayMode [default]	PF2 DMode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF2 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF2 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF2 Sel5Tone	Select 5-Tone encode
		Sel HDC	PF2 SelHDC	Select HDC encode
		TX Power	PF2 TXPower	Switch transmit power
		Scan	PF2 Scan	Scan
				Add/Del in non-scan mode

		Add/Del	PF2 Add/Del	Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF2 Reverse	Reverse frequency
		Talk Around	PF2 TA	Talk around
		SEL SQL	PF2 SELSQL	Select squelch level
		Home CH	PF2 HomeCH	Home channel
		Public Address	PF2 PA	Public address
		Horn Alert	PF2 HornAler	Horn alert
		LCD Backlight	PF2 LCDBL	LCD backlight
		Scrambler	PF2 Scramble	Scrambler
		Compander	PF2 Compand	Compander
		AUX A	PF2 AUX A	AUXA Port output control
		AUX B	PF2 AUX B	AUXB Port output control
		Send GPS	PF2 Send GPS	Send GPS
		Emergency Call	PF2 Emergency	Emergency call
		Message	PF2 Message	Message
Sel HDC	PFI SelHDC	Select HDC encode	PF3 Off	No function
		VOL UP	PF3 VOL Up	Volume Up
		VOL Down	PF3 VOL Down	Volume Down
		CH Up	PF3 CH Up	Channel Up
		CH Down	PF3 CH Down	Channel Down
		Zone Up	PF3 Zone Up	Zone Up
		Zone Down	PF3 Zone Down	Zone Down
		MoniA	PF3 MoniA	Monitor A: Monitor Unmute-momentary
		MoniB	PF3 MoniB	Monitor B: Monitor Unmute-Toggle
		MoniC	PF3 MoniC	Monitor C: Carrier Squelch-momentary
		MoniD	PF3 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF3 Dlabel	Display channel label
		Display Frequency	PF3 DFreq	Display frequency
		Display Mode	PF3 DMode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF3 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF3 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF3 Sel5Tone	Select 5-Tone encode
		Sel HDC	PF3 SelHDC	Select HDC encode
		TX Power [default]	PF3 TXPower	Switch transmit power
		Scan	PF3 Scan	Scan
		Add/Del	PF3 Add/Del	Add/Del as not at scan status
				Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF3 Reverse	Reverse frequency

		Talk Around	PF3 TA	Talk around
		SEL SQL	PF3 SELSQL	Select squelch level
		Home CH	PF3 HomeCH	Home channel
		Public Address	PF3 PA	Public address
		Horn Alert	PF3 HornAler	Horn alert
		LCD Backlight	PF3 LCDBL	LCD backlight
		Scrambler	PF3 Scramble	Scrambler
		Compander	PF3 Compand	Compander
		AUX A	PF3 AUX A	AUXA Port output control
		AUX B	PF3 AUX B	AUXB Port output control
		Send GPS	PF3 Send GPS	Send GPS
		Emergency Call	PF3 Emergency	Emergency call
		Message	PF3 Message	Message
4	[PF4]	Off	PF4 Off	No function
		VOL UP	PF4 VOL Up	Volume Up
		VOL Down	PF4 VOL Down	Volume Down
		CH Up	PF4 CH Up	Channel Up
		CH Down	PF4 CH Down	Channel Down
		Zone Up	PF4 Zone Up	Zone Up
		Zone Down	PF4 Zone Down	Zone Down
		Moni A	PF4 MoniA	Monitor A: Monitor Unmute-momentary
		Moni B	PF4 MoniB	Monitor B: Monitor Unmute-Toggle
		Moni C	PF4 MoniC	Monitor C: Carrier Squelch-momentary
		Moni D	PF4 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF4 Dlabel	Display channel label
		Display Frequency	PF4 DFreq	Display frequency
		Display Mode	PF4 DMode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF4 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF4 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF4 Sel5Tone	Select 5-Tone encode
		Sel HDC	PF4 SelHDC	Select HDC encode
		TX Power	PF4 TXPower	Switch transmit power
		Scan [default]	PF4 Scan	Scan
		Add/Del	PF4 Add/Del	Add/Del as not at scan status
				Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF4 Reverse	Reverse frequency
		Talk Around	PF4 TA	Talk around
		SEL SQL	PF4 SELSQL	Select squelch level
		Home CH	PF4 HomeCH	Home channel

		Public Address	PF4 PA	Public address
		Horn Alert	PF4 HornAler	Horn alert
		LCD Backlight	PF4 LCDBL	LCD backlight
		Scrambler	PF4 Scramble	Scrambler
		Compander	PF4 Compand	Compander
		AUX A	PF4 AUX A	AUXA Port output control
		AUX B	PF4 AUX B	AUXB Port output control
		Send GPS	PF4 SendGPS	Send GPS
		Emergency Call	PF4 Emergency	Emergency call
		Message	PF4 Message	Message
5	[PF5]	Off	PF5 Off	No function
		VOL UP	PF5 VOL Up	Volume Up
		VOL Down	PF5 VOL Down	Volume Down
		CH Up	PF5 CH Up	Channel Up
		CH Down	PF5 CH Down	Channel Down
		Zone Up	PF5 Zone Up	Zone Up
		Zone Down [default]	PF5 Zone Down	Zone Down
		Moni A	PF5 MoniA	Monitor A: Monitor Unmute-momentary
		Moni B	PF5 MoniB	Monitor B: Monitor Unmute-Toggle
		Moni C	PF5 MoniC	Monitor C: Carrier Squelch-momentary
		Moni D	PF5 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF5 Dlabel	Display channel label
		Display Frequency	PF5 DFreq	Display frequency
		Display Mode	PF5 DMode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF5 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF5 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF5 Sel5Tone	Select 5-Tone encode
		Sel HDC	PF5 SelHDC	Select HDC encode
		TX Power	PF5 TXPower	Switch transmit power
		Scan	PF5 Scan	Scan
		Add/Del	PF5 Add/Del	Add/Del as not at scan status
				Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF5 Reverse	Reverse frequency
		Talk Around	PF5 TA	Talk around
		SEL SQL	PF5 SELSQL	Select squelch level
		Home CH	PF5 HomeCH	Home channel
		Public Address	PF5 PA	Public address
		Horn Alert	PF5 HornAler	Horn alert
		LCD Backlight	PF5 LCDBL	LCD backlight

		Scrambler	PF5 Scramble	Scrambler
		Compander	PF5 Compand	Compander
		AUX A	PF5 AUX A	AUXA Port output control
		AUX B	PF5 AUX B	AUXB Port output control
		Send GPS	PF5 SendGPS	Send GPS
		Emergency Call	PF5 Emergency	Emergency call
		Message	PF5 Message	Message
6	[PF6]	Off	PF6 Off	No function
		VOL UP	PF6 VOL Up	Volume Up
		VOL Down	PF6 VOL Down	Volume Down
		CH Up	PF6 CH Up	Channel Up
		CH Down	PF6 CH Down	Channel Down
		Zone Up [default]	PF6 Zone Up	Zone Up
		Zone Down	PF6 Zone Down	Zone Down
		Moni A	PF6 MoniA	Monitor A: Monitor Unmute-momentary
		Moni B	PF6 MoniB	Monitor B: Monitor Unmute-Toggle
		Moni C	PF6 MoniC	Monitor C: Carrier Squelch-momentary
		Moni D	PF6 MoniD	Monitor D: Carrier Squelch-Toggle
		DisplayLabel	PF6 Dlabel	Display channel label
		Display Frequency	PF6 DFreq	Display frequency
		Display Mode	PF6 DMode	Display toggles among channel number, channel label and channel frequency
		User Selectable Tone	PF6 UserTone	Tone 01-32 (CTCSS/CDCSS)
		Sel 2Tone	PF6 Sel2Tone	Select 2-Tone encode
		Sel 5Tone	PF6 Sel5Tone	Select 5-Tone encode
		Sel HDC	PF6 SelHDC	Select HDC encode
		TX Power	PF6 TXPower	Switch transmit power
		Scan	PF6 Scan	Scan
		Add/Del	PF6 Add/Del	Add/Del as not at scan status
				Temporarily delete nuisance channel
				Temporarily delete priority channel
		Reverse	PF6 Reverse	Reverse frequency
		Talk Around	PF6 TA	Talk around
		SEL SQL	PF6 SELSQL	Select squelch level
		Home CH	PF6 HomeCH	Home channel
		Public Address	PF6 PA	Public address
		Horn Alert	PF6 HornAler	Horn alert
		LCD Backlight	PF6 LCDBL	LCD backlight
		Scrambler	PF6 Scramble	Scrambler
		Compander	PF6 Compand	Compander
		AUX A	PF6 AUX A	AUXA Port output control

		AUX B	PF6 AUX B	AUXB Port output control
		Send GPS	PF6 SendGPS	Send GPS
		Emergency Call	PF6 Emergency	Emergency call
		Message	PF6 Message	Message
7	[Selector Knob]	Volume Knob [Default]	Volume Knob	Volume Knob
		Channel Knob	Channel Knob	Channel selector knob
		Zone Knob	Zone Knob	Zone selector knob
8	[UP/Down]	Volume Up/Down	Volume UpDn	Volume Knob
		Channel Up/Down [Default]	Channel UpDn	Channel selector knob
		Zone Up/Down	Zone UpDn	Zone selector knob
9	END	END	END	Indicate the end of menu options

Appendix 1 Entering Characters

? Entering characters with an optional microphone keypad

KEY	CHARACTER								NUMBER	REMARKS
	Number of times key is pressed									
	1	2	3	4	5	6	7	8		
1	Space								1	Each key can generate numeric and character information. Pressing a key will cause the first character of the key's character cycle to appear on the LCD; Subsequent pressing of the same key will cause subsequent characters in the cycle to appear. For example, to enter the character "S", press the "7" key four (4) times.
2	A	B	C	a	b	c			2	
3	D	E	F	d	e	f			3	
4	G	H	I	g	h	i			4	
5	J	K	L	j	k	l			5	
6	M	N	O	m	n	o			6	
7	P	Q	R	S	p	q	r	s	7	
8	T	U	V	t	u	v			8	
9	W	X	Y	Z	w	x	y	z	9	
0									0	

A	@	!	#	$	%	^	&	~		
B	+	-	*	/	=	\	_	|		
C	(	)	<	>	[	]	{	}		
D	,	.	?	:	;	“	‘	`		
*	Press to toggle between number and character									
#	Press to clear the input									
PTT	Enter (Complete programming and store)									

? Entering characters without a keypad

- ? Turn Selector Knob to choose the character to be entered.
- ? Press the [PF2] key to toggle among number, uppercase letter, lowercase letter and symbol.
- ? Press the [PF3] / [PF4] key to move the cursor forward/backward.
- ? Press the [PF1] key to clear the input.
- ? Press the [PF6] key to confirm the input.

Optional Accessories

Keypad Microphone
Remote Mount Kit

Antenna

Cloning cable

Programming cable
External Speaker

RELM endeavors to achieve the accuracy and completeness of this manual, but cannot guarantee its accuracy at all time. All the above specifications and design are subject to change by RELM without notice.

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